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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,533	08/22/2003	Hironobu Shinohara	241912US0X	8113

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EXAMINER	
ZACHARIA, RAMSEY E	
ART UNIT	**PAPER NUMBER**
1773	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/645,533	SHINOHARA, HIRONOBU	
	Examiner	Art Unit	
	Ramsey Zacharia	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,21 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,21 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04 April 2005 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection. While the disclosure supports dopants comprising polymers styrenesulfonic acid or styrenesulfonic acid alkali salts, no support could be found in the

disclosure as originally filed for a dopant of polystyrene comprising sulfur. It does not appear that the inventors had in their possession the concept of using polystyrene containing sulfur as a dopant when the sulfur is present as anything but a sulfonic acid moiety. However, claim 21 encompasses all polystyrene containing sulfur, not just polymers of a styrenesulfonic acid or styrenesulfonic acid alkali salt.

Claim Rejections - 35 USC § 103

5. Claims 1-9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (U.S. Patent 6,191,837) in view of Bennett (U.S. Patent 4,674,840).

Fujimaki et al. teach a liquid crystal display comprising a substrate with an electroconductive film provided on the substrate (column 5, line 66-column 6, line 13). The electroconductive film may comprise a polythiophene (column 6, lines 40-55). A polarizing plate may be disposed on one side of the electroconductive film (column 6, lines 28-30). The electroconductive film has a surface resistivity of 100 kΩ/square, i.e. 10^5 Ω/square (column 10, lines 8-11). The material of the electroconductive film further comprises an oxidant, which reads on the dopant of instant claim 3 (column 11, lines 4-11). The thickness of the electroconductive film is from 100 Å to 1 μm, i.e. less than 3 μm (column 11, lines 23-27). The material of the electroconductive film may comprise an organic binder (column 11, lines 28-35). Furthermore, a hard coat and an antiglare layer may be applied (column 13, lines 23-30). The electroconducitve film on the substrate acts as a protective film because it protects the display (which includes a polarizing plate) from the effects of static electricity.

Fujimaki et al. are silent as to the visible light transmission of the electroconductive film. However, the film of Fujimaki et al. should intrinsically possess a visible light transmission of 78% or more since it is composed of the same material as the instant conductive polymer, is formed to the same thickness, and is designed to be optically transparent since it is used as in a liquid crystal display.

Fujimaki et al. do not teach the use of an acetyl cellulose material as the transparent substrate.

Bennett teaches the use of a polymer such as cellulose acetate or cellulose acetate butyrate (i.e. acetyl cellulose materials) as a substrate for liquid crystal displays (column 3, lines 3-17). Substrates formed from such polymers facilitate handling and manufacture of the display device (column 3, lines 8-12).

One of ordinary skill in the art would be motivated to use the cellulose acetate or cellulose acetate butyrate polymer of Bennett as the substrate of Fujimaki et al. to facilitate handling and manufacture of the resulting display device.

6. Claims 1-9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (U.S. Patent 6,191,837) in view of Hani et al. (U.S. Patent 5,334,424).

Fujimaki et al. teach a liquid crystal display comprising first and second substrates with electroconductive films provided on one or both of the substrates (column 5, line 66-column 6, line 13). The electroconductive film may comprise a polythiophene (column 6, lines 40-55). a polarizing plate may be disposed on one side of the electroconductive film (column 6, lines 28-30). The electroconductive film has a surface resistivity of 100 kΩ/square, i.e. 10^5 Ω/square

(column 10, lines 8-11). The material of the electroconductive film further comprises an oxidant, which reads on the dopant of instant claim 3 (column 11, lines 4-11). The thickness of the electroconductive film is from 100 Å to 1 μm, i.e. less than 3 μm (column 11, lines 23-27). The material of the electroconductive film may comprise an organic binder (column 11, lines 28-35). Furthermore, a hard coat and an antiglare layer may be applied (column 13, lines 23-30). The electroconducitve film on the substrate acts as a protective film because it protects the display (which includes a polarizing plate) from the effects of static electricity.

Fujimaki et al. are silent as to the visible light transmission of the electroconductive film. However, the film of Fujimaki et al. should intrinsically possess a visible light transmission of 78% or more since it is composed of the same material as the instant conductive polymer, is formed to the same thickness, and is designed to be optically transparent since it is used as in a liquid crystal display.

Fujimaki et al. do not teach the use of an acetyl cellulose material as the transparent substrate. In the embodiments of the Examples, glass is used as the substrate.

Hani et al. teach a norbornene resin for use as a substrate in liquid crystal displays which is excellent in many areas including transparency, processability, strength, flexibility, and resistance to heat, moisture, water, and chemicals (column 2, lines 5-12). The norbornene resin substrate is presented as an improvement over conventional glass substrates, which are apt to be broken when thin and tend to be too heavy when the thickness is increased (column 1, lines 29-35).

One of ordinary skill in the art would be motivated to use the norbornene resin of Hani et al. for the substrate of Fujimaki et al. to yield a product with improved transparency, strength,

flexibility, and resistance to heat, moisture, water, and chemicals that would not have the problems associated with glass substrates.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (U.S. Patent 6,191,837) in view of Hani et al. (U.S. Patent 5,334,424) as applied to claim 3 above, and further in view of Babinec et al. (U.S. Patent 6,203,727).

Fujimaki et al. taken in view of Hani et al. teach all the limitations of claim 21, as outlined above, except for the use of a polystyrene comprising sulfur as a dopant. However, Fujimaki et al. do teach the use of oxidants, such as an organic acid or Fe(III) salts (column 11, lines 4-11).

Babinec et al. is directed to electrically conductive polymers that may be used as electrically conductive coatings or in antistatic applications (column 2, lines 1-12). The polymers possess excellent conductivity, thermal stability and good compatibility with matrix polymers (e.g. binder) by using a combination of a low molecular weight dopant and a high molecular weight dopant (column 1, line 63-column 2, line 1). In the embodiment of Example 5, Babinec et al. illustrate a polythiophene doped with polystyrene sulfonic acid and either $FeCl_3$ (an Fe(III) salt) or hydroxybenzene sulfonic acid (an organic salt).

One skilled in the art would be motivated to use a binary oxidant system, such as polystyrene sulfonic acid in conjunction with an Fe(III) salt or organic acid, with the polythiophene of Fujimaki et al. because Babinec et al. teach that the combination of low and high molecular weight dopants improves the thermal stability and compatibility with matrix polymers of the resulting material.

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (U.S. Patent 6,191,837) in view of Bennett (U.S. Patent 4,674,840) as applied to claim 3 above, and further in view of Babinec et al. (U.S. Patent 6,203,727).

Fujimaki et al. taken in view of Bennett teach all the limitations of claim 21, as outlined above, except for the use of a polystyrene comprising sulfur as a dopant. However, Fujimaki et al. do teach the use of oxidants, such as an organic acid or Fe(III) salts (column 11, lines 4-11).

Babinec et al. is directed to electrically conductive polymers that may be used as electrically conductive coatings or in antistatic applications (column 2, lines 1-12). The polymers possess excellent conductivity, thermal stability and good compatibility with matrix polymers (e.g. binder) by using a combination of a low molecular weight dopant and a high molecular weight dopant (column 1, line 63-column 2, line 1). In the embodiment of Example 5, Babinec et al. illustrate a polythiophene doped with polystyrene sulfonic acid and either $FeCl_3$ (an Fe(III) salt) or hydroxybenzene sulfonic acid (an organic salt).

One skilled in the art would be motivated to use a binary oxidant system, such as polystyrene sulfonic acid in conjunction with an Fe(III) salt or organic acid, with the polythiophene of Fujimaki et al. because Babinec et al. teach that the combination of low and high molecular weight dopants improves the thermal stability and compatibility with matrix polymers of the resulting material.

Response to Arguments

9. Applicant's arguments filed 04 April 2005 have been fully considered but they are not persuasive.

The applicant argues that the usage of the present invention and the cited references are different, with the instant invention is directed to a protective film for a polarizing plate as opposed to Fujimaki et al. which is concerned with a polarizing plate itself and Hani et al. and Bennett which are concerned with liquid crystal substrates having formed thereon a conductive electrode.

This is not persuasive for the following reasons. First, because the claims are directed to an article, the manner in which the claimed article is intended to be used does not differentiate the claimed product from a prior art product satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Second, the film of Fujimaki et al. does act as a protective film because it protects the liquid crystal display from the build up of static electricity. And because the liquid crystal display comprises a polarizing plate, this polarizing plate is part of the display to which the film provides protection. Finally, the usage of the substrates of Fujimaki et al., Hani et al., and Bennett are not different. In each case the substrates are used as transparent substrates in liquid crystal display devices. All three references use terminology that is the same or functionally the equivalent, "transparent substrate" in Fujimaki et al. and Bennett and "substrates...which are excellent in transparency" in Hani et al. Further support for the functional equivalence of the substrates in these three references can be found in Fujimaki et al. which also describes forming electrodes on one of their transparent substrates (see column 8, lines 9-13). As such, the transparent substrates in Fujimaki et al., Bennett and Hani et al. all

perform the same function. Fujimaki et al. illustrate using glass as a transparent substrate in their examples but never limit their substrate to only glass. Both Bennett and Hani et al. provide motivation for using a cellulose acetate or norbornene, respectively, as a transparent substrate in a liquid crystal display with Hani et al. explicitly teaching that it is known in the art to use transparent resins in place of glass for substrates in optical devices (see column 1, lines 29-37).

The applicant argues the position that a substrate made of glass and a film used in a liquid crystal can be readily interchanged is incorrect because a film and the substrate in many instances function in different ways and thus have different requirements.

This is not persuasive because, not only do Fujimaki et al., Bennett and Hani et al. all refer to their materials as transparent substrates, but Hani et al. explicitly states that resin substrates in general, and their norbornene substrate in particular, may be used in place of glass substrates in optical devices such as liquid crystal displays. Furthermore, Fujimaki et al. do not require that their substrate be glass. In the "Summary of the Invention" Fujimaki et al. refers to transparent substrates, only in the embodiments of the Examples is the glass used as a substrate. Disclosed examples (in this case, a glass substrate) do not constitute a teaching away from a broader disclosure (in this case, transparent substrate). See MPEP § 2123. One skilled in the art would recognize that the "transparent substrate" could be formed from any material known to be used as a transparent substrate in a liquid crystal display.

Furthermore, the desired properties of the applicant's polythiophene protective film are either recognized by Fujimaki et al. (antistatic properties) or intrinsically present (shielding electromagnetic waves and not turning yellow) since Fujimaki et al. uses polythiophene (as opposed to ITO, polyaniline, or polypyrrole) as their electroconductive film. Whether Fujimaki

et al. recognized the coloring characteristics of polythiophene is immaterial to the issue of patentability since (1) the discovery of a previously unappreciated property of a prior art material does not render the old material patentably new to the discoverer and (2) there is no requirement that a person of ordinary skill in the art would have recognized the inherent properties at the time of invention, but only that the subject matter is in fact inherent in the prior art reference. See MPEP § 2112.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramsey Zacharia
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